

## SOLAR STILL

### I. Basic Materials:

- 1 - 6 x 6 foot sheet of clear plastic, TEDLAR PLASTIC, adherable material by Dupont, marketed as No. 100 BG 20. Mylar will work if roughened with wet or dry sand paper.
- 2 - A bucket (two to four quart size) or a large plastic bag - freezer type or any wide mouth container.
- 3 - Flexible plastic tubing, about 5 feet.
- 4 - A rock, fist size.

### II. Method:

Much of our domestic water supply comes from the ground. We drill wells and tap ground water. There is also water closer to the surface. This water is continually evaporating and returning to the atmosphere where later in the cycle it condenses and falls as rain.

Even apparently dry ground contains water.

Here, briefly, is how it works. The sun's heat raises the temperature of the air and soil under the plastic, thus hastening vaporization of water. Finally, the air under the plastic is saturated - it can hold no more water vapor. Then the vapor begins to condense in tiny drops on the under surface of the plastic, because the plastic is relatively cooler than the damp air under it. The drops slowly run down the sloping underside of the plastic and drip off into the bucket or plastic bag.

Because solar energy provides the heat for the still, it might seem logical that darkness would halt production. After sundown, however, the plastic cools rapidly, while the temperature of the soil remains relatively high. So water vapor continues to condense on the undersurface of the plastic. This still will produce about half as much water from 4 p.m. to 8 a.m. as during the daylight hours.

### III. Construction of Still:

1. Pick an unshaded spot, dig the hole. If you have no shovel, you can use a stick or even your hands. The hole should be about three feet across. Maintain this diameter for a few inches down, and then slope the hole toward the bottom (see diagram). The hole should be deep enough so that the point of the plastic cone can be about 18 inches below ground and still clear the top of the bucket or plastic bag.
2. With the hole properly dug, tape one end of the drinking tube inside the bucket or plastic bag. Set container in the spot dead center in the bottom of the hole. Run the other end of the drinking tube up and out of the hole. Being careful to leave the top end of the drinking tube free.
3. Lay the plastic sheet over the hole and pile enough dirt around the edge to hold it securely.
4. Use a fist-size rock to weight down the center of the plastic. Make any adjustments necessary to bring it within a couple of inches of the top of the container. There should be two or three inches of air space between the inverted plastic cone thus formed and the earth, this distance is not critical. Just make sure the plastic cone does not touch the earth anywhere and thus waste water. Don't let the plastic touch the container, either, or the water might run down the outside of the bucket.

### IV. Production:

After the first 24 hours, averaged about a quart of water a day. Water in container will have bacteria count, negligible, about same as in city water. Water will be slightly acid, some dirt will appear in the bucket, coming from particles in drops of water that started where the plastic met the dirt at top of the hole. Contents of the bucket is completely o.k. for drinking.

To increase a still's production slice up a barrel cactus and place the pieces in the hole beneath the plastic.

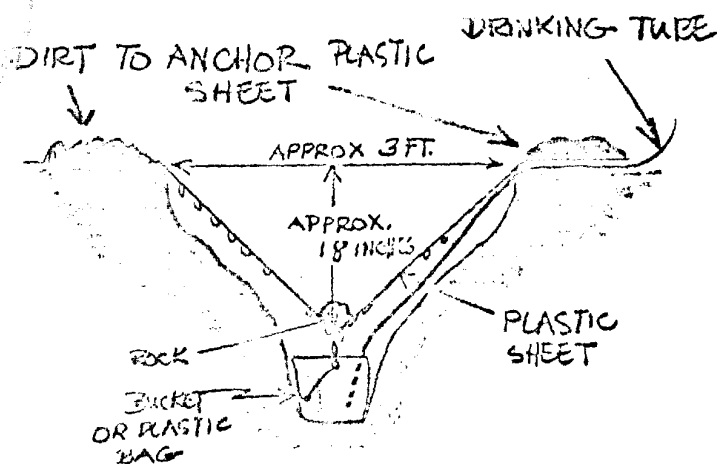
Result is a production of three pints of water a day for several days. Any vegetation added in this way will, to some extent, increase the water output.

V. Advantage Besides Water:

In case of a rain, the survival still acts as a catch basin and holds this water.

Another possible bonus is food. The water bucket under the plastic attracts snakes and small animals, which crawl down the top surface of the plastic and then can't climb back out. So for anybody hungry enough not to be squeamish, this survival gear may also provide something to eat.

# SOLAR STILL DIAGRAM



HEAT FROM SUN  
VAPORIZES GROUND  
WATER. THEN THIS  
VAPOR CONDENSES  
UNDER PLASTIC,  
TRICKLES DOWN,  
DROPS INTO BUCKET

CROSS SECTION  
OF STILL

